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A NEWLY DISCOVERED PARASITIC NEMATODE
(*Tylenchus mahogani,* n. sp.)

CONNECTED WITH A DISEASE OF THE MAHOGANY TREE

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Tylenchus mahogani, n. sp. $\frac{3.4}{3.7}\;\frac{15.}{4.8}\;\frac{21.}{4.8}\;\frac{{}^{60}\text{—}83\text{-}{}^{3}}{4.1}\;\frac{96.3}{2.3}\;0.56\text{ mm}$ The naked transparent, colorless cuticle is traversed by about one thousand plain transverse striae to the millimeter. The striae are more or less easy of resolution, and, owing to their presence, the plain contour of the body becomes more or less crenate on the tail of the female. Two wings occur opposite each lateral field, consisting of two double lines, beginning near the head and ending near the anus, and occupying a space one-third as wide as the body. There are no longitudinal striations in the cuticle, but the attachment of the somatic muscles gives rise to faint longitudinal markings in the subcuticle. The rounded or subtruncate continuous head presents a mouth-opening of the usual character—not at all, or exceedingly little, depressed. The minute lips are thoroughly amalgamated, and present a refractive, six-ribbed framework as the support of a flattish dome very much like that found in related species, such as *Tylenchus musicola.* The lip-region may be described as being flattish hemispherical, and its framework may appear as if made up of a series of six loop-like elements. The tubular pharynx is entirely typical. The refractive spear, which is about as long as the base of the head is wide, is a rather prominent feature. Its base is faintly trilobed and one-fifth to one-sixth as wide as the base of the head. The main shaft of the spear, comprising the posterior half, is one-half as wide as the bulb, and its junction with the tapering anterior half of the spear is marked by a distinct, but exceedingly fine, encircling ridge. The guiding pieces for the spear, forming the axial part of the lip-region and surrounding the spear, are three-fifths as long as the tapering anterior half of the spear. Posteriorly, the neck is more or less cylindroid; anteriorly, it is conoid. No traces of amphids or eye-spots have been seen. The subspherical median bulb of the esophagus is one-half as wide as the corresponding portion of the neck, and is set off by a constriction in front. The anterior portion of the esophagus tapers more or less to the median bulb, so that at the base of the pharynx the esophagus is two-fifths, at the nerve-ring one-fifth, as wide as the corresponding part of the neck. The lining of the esophagus is a distinct feature. Esophageal glands of the usual tylenchoid character appear to be present. The median bulb contains a sub-spheroidal valve one-fourth as wide as itself. The intestine, which, as is often the case in Tylenchus, begins in a rather indefinite way, has a faint lumen and thick walls, and in cross-section presents few cells. There is no pre-rectum. The rectum is inconspicuous and about as long as the anal body diameter. The continuous anus is also inconspicuous. The granules packed in the cells of the intestine are of variable size, the largest being about one-eighth as wide as the body; they do not give rise to a tessellated effect. The straight tail of the female is conoid to convex-conoid, and tapers from the anus, or from somewhat in front of the anus, to the subtruncate or rounded, symmetrical terminus, which is two-thirds to three-fifths as wide as the base of the tail. There is no spinneret, and there are no caudal glands. There is a single lateral innervation on each side near the middle of the tail. The longitudinal fields are three-fifths as wide as the body. The excretory pore lies near the nerve-ring, which is oblique and of medium size. There is a posterior, rudimentary branch to the female sexual organs, about half as long as the body-width, and one-half as wide as long. From the well-developed elevated vulva, the large cutinized vagina extends inward at right angles to the ventral surface of the body. The uterus and ovary are outstretched toward the neck. The uterus is of such a size as to contain but one egg at a time. The uterine egg appears about twice as long as the body is wide and half as wide as long, and is covered by a thin, smooth shell. The eggs are deposited after segmentation begins; in fact, frequently contain embryoys. The medium-sized ovary is tapering in form, and near its blind end is only about one-third as wide as the body. It contains up to about twenty ova, which in the principal part of the ovary are arranged single file, but towards the blind end are arranged more or less irregularly.

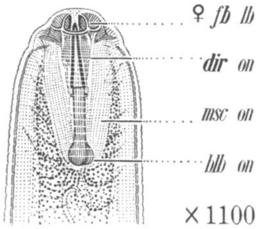

Fig. 1.—Lateral view of head of female of *Tylenchus mahogani, n. sp.* *fb lb,* framework of lip region; *dir on,* guide for spear; *msc on.* protruding-muscle of spear; *blb on,* bulbous base of spear.

Male: $\frac{3.2}{3.2}\ \frac{13.}{3.7}\ \frac{19.}{4.}\ \frac{\overset{67}{-M}}{4.4}\ \frac{94.8}{2.8}\ 0.52$ mm The two, equal, colorless, rather strong though slender, subarcuate spicula, at their widest part are one-fifth to one-sixth as wide as the corresponding portion of the body. They taper distally to a sub-acute apex. They are one and one-half times as long as the anal body-diameter, are cephalated by a broad and shallow constriction, and are so arranged that their proximal ends appear to lie more or less dorsad from the body axis. The single, straight, or slightly arcuate, rather slender, more or less frail, simple, non-apophysate accessory piece lies parallel to the spicula and is about one-third as long as they. There are no supplementary organs. The rather plain-margined bursa springs from opposite the heads of the spicula at a distance in front of the anus as great as the corresponding body diameter. When seen in profile the somewhat

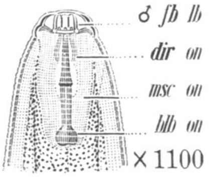

Fig. 2.—Lateral view of head of male of *Tylenchus mahogani, n. sp.* *fb lb,* framework of lip region; *dir on,* guide for spear; *msc on,* protruding-muscle of spear; *blb on,* bulbous base of spear.

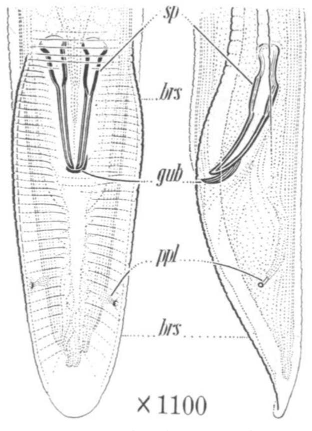

Fig. 3.—Ventral and lateral view of tail end of male of *Tylenchus mahogani, n. sp.* *sp,* spicula; *brs,* bursa; *gub,* gubernaculum or accessory piece; *ppl,* papilla.

rudimentary flaps of the bursa hardly reach the ventral contour. The bursa extends behind the anus a distance twice as great as the anal body diameter, just about encompassing the tail. On each side about midway on the tail, there is an inconspicuous lateral rib or papilla. There really is no very distinct flap to the bursa, so that in the ventral aspect the tail-end of the male appears widened only a very trifling amount, and the ventral surface only slightly concaved. Somewhat in front of the anus the two wings diverge, so that opposite the anus, they occupy two-thirds of the width of the body; here the dorsad branch ceases, while the ventrad branch continues, and, expanding, forms the bursa, which is rather inconspicuous when seen laterally — rather less so than the illustrations would indicate.

Habitat: Tissues of the mahogany tree. Fixed in formalin, mounted and examined in water. This resembles *Tylenchus musicola* Cobb, but differs in the following respects:

1. It is relatively broader in the ratio of about 4 + : 3.
2. It is less coarsely striated.
3. The bursa is less obvious and not so thin.
4. The spear is more refractive, though relatively not so wide or long.
5. The guiding apparatus to the spear is more obvious.

The species also bears considerable resemblance to *Tylenchus coffeae* Zimmerman.

The following table give comparative data with reference to these species:

COMPARISONS

	Spear			Bursa
	Length and Width in Terms of Diameter of Base of Head		Nature and Composition of the Spear	
	Length	Width		
T. mahogani n. sp. ...	1	⅕	Refractive. Bulbs amalgamated	Not obvious, thick; not exceeding ventral contour; not exceeding tail
T. coffeae Zimm.	1-1⅓	¼-⅓	Refractive. Bulbs distinct	Obvious, thin; exceeds ventral contour; in length, equals tail
T. musicola Cobb.....	1⅓-1½	⅓	Faint. Bulbs distinct	Obvious, thin; exceeds ventral contour; not exceeding tail

It remains uncertain how serious this disease of the mahogany tree may be. The Director of Agriculture for Barbados, Mr. John R. Bovell, in a letter to the writer, says:

"I have known trees that have shown indications of being attacked for over thirty years which are still alive, and practically no different in appearance than they were when I first noticed them.

"I have been trying to see whether it was not possible to destroy the nemas by taking off the bark and the cambium layer practically down to the young wood of one-half of the attacked portion of the base of the tree and painting it with lime sulphur wash, repeating the painting in about a week and a half, allowing that half of the tree almost to heal before the other half was treated. The tree I treated bore the treatment exceedingly well and did not seem to feel the effects in the slightest, but I do not think we have succeeded in killing all the nemas."